

CLAIMS

The claimed invention is as follows:

1. A method for improving performance of a digital subscriber line comprising:
determining a status of a telephone hookswitch;
determining whether retraining is indicated; and
determining whether power level adjustment is indicated.
2. The method of claim 1 further comprising:
initiating a retraining routine; and
adjusting a power level.
3. The method of claim 2 wherein said step of determining whether said retraining is indicated occurs in response to said step of determining said status of said telephone hookswitch.
4. The method of claim 3 wherein said step of determining said status of said telephone hookswitch further comprises determining whether said status of said telephone hookswitch has changed.
5. The method of claim 3 further comprising the steps of:
determining whether a different modem configuration profile is appropriate; and
selecting said different modem configuration profile.

6. The method of claim 1 further comprising:
determining whether an inline filter is installed.

7. The method of claim 6 wherein said step of determining whether said inline filter is installed occurs when said status of said telephone hookswitch is off hook.

8. The method of claim 6 further comprising:
initiating a retraining routine; and
adjusting a power level.

9. The method of claim 8 wherein said step of determining whether said retraining is indicated occurs in response to said step of determining whether said inline filter is installed.

10. The method of claim 9 further comprising the steps of:
determining whether a different modem configuration profile is appropriate; and
selecting said different modem configuration profile.

11. A method for determining whether modem retraining is indicated comprising:
determining a status of a telephone hookswitch; and
performing an echo channel measurement procedure.

12. The method of claim 11 further comprising:
determining a channel transfer function.

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13. The method of claim 12 wherein said step of determining said status of said telephone hookswitch further comprises:

determining whether said status of said telephone hookswitch has changed, and wherein said step of determining said channel transfer function further comprises: determining whether said channel transfer function has changed.

14. The method of claim 11 wherein said step of performing said echo channel measurement procedure further comprises:

scheduling a time frame for performing said echo channel measurement procedure; acknowledging said step of scheduling; discontinuing transmission of data by a first modem; initiating transmission of an echo testing signal by a second modem; and performing a measurement of said echo testing signal.

15. The method of claim 14 further comprising: determining whether said measurement of said echo testing signal indicates a need for retraining.

16. The method of claim 14 further comprising: said first modem and said second modem resuming normal communication after said step of performing measurement of said echo testing signal.

17. A method for determining whether retraining is indicated comprising:

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obtaining line quality information comprising a hookswitch status, a channel transfer function, and an echo measurement; and

determining whether said line quality information indicates retraining is needed.

18. The method of claim 17 wherein said step of obtaining line quality information further comprises obtaining an error rate, a noise margin, and a change in noise margin.

~~19.~~ A method for reducing distortion on a digital subscriber line comprising:
performing a channel loss measurement on said digital subscriber line;
determining a minimum required signal level; and
adjusting a signal level on said digital subscriber line to remain above said minimum required signal level.

20. The method of claim 19 wherein said step of adjusting said signal level occurs in response to a telephone hookswitch changing from being in an on-hook state to being in an off-hook state.

21. The method of claim 19 wherein said step of adjusting said signal level occurs according to a user selection from among multiple signal level settings.

~~22.~~ A method for estimating telephone hookswitch status comprising:
periodically initiating detection routines;
determining whether a change in modem performance has occurred; and

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characterizing said change in modem performance as an indication of change in said telephone hookswitch status.

23. A method for controlling a modem comprising the steps of:
detecting a hookswitch state and a presence of an inline filter; and
optimizing modem parameters based on said hookswitch state and said presence of said inline filter.

24. The method of claim 23 further comprising the step of:
retraining said modem.

25. The method of claim 24 further comprising the step of:
initializing said modem.

26. A method for determining a need for retraining a modem comprising the steps of:
determining a hookswitch state;
obtaining line quality information;
determining if said line quality information suggests a need for retraining;
determining if a channel response has changed; and
checking an echo response.

27. A method for controlling a transmit power level of a modem comprising the steps
of:
measuring a noise margin;

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counting errors during a time interval; and
decreasing said transmit power level.

28. A method for controlling a modem transmission while telephone equipment is in an off-hook state comprising the steps of:

determining if said modem transmission is allowed during said off-hook state;
setting a minimum power per carrier to support a minimum pre-defined data rate with a minimum pre-defined noise margin.

29. The method of claim 28 further comprising the steps of:
setting a power level for said modem transmission to zero; and
waiting for an on-hook transition.

30. The method of claim 29 further comprising the step of:
saving said minimum power per carrier in a storage memory.

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31. The method of claim 30 further comprising the step of:
initializing a modem.

32. The method of claim 28 wherein said step of determining if said modem transmission is allowed during said off-hook state further comprises the step of:
receiving a user indication as to whether said modem transmission is allowed during said off-hook state.